TABLE 2.—*Rainfall departures at Denver, Colo.*

Year.	January.	February.	March.	April.	May.	June.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1872	0.01	−0.31	−0.02	0.19	0.98	0.71
1873	−0.41	−0.29	−0.71	0.53	−2.01	0.88
1874	0.30	0.00	−0.44	−0.20	−0.33	−0.15
1875	−0.16	0.07	−0.54	0.34	−0.82	−0.93
1876	−0.33	−0.42	0.87	−0.68	5.81	−0.26
1877	1.36	−0.13	0.47	0.87	−0.46	0.57
1878	−0.44	−0.05	0.89	−1.85	0.14	1.42
1879	−0.14	−0.14	0.07	0.72	0.60	−1.04
1880	−0.16	−0.21	−0.72	−1.59	−1.65	−0.14
1881	−0.04	0.69	−0.06	−1.40	−0.55	−1.27
1882	0.03	−0.33	−0.73	−0.43	0.22	3.60
1883	1.81	−0.08	−0.72	1.20	1.54	−0.51
1884	−0.32	0.33	0.00	1.43	1.85	0.11
1885	−0.13	0.22	0.04	3.04	−0.63	−0.70
1886	0.08	0.19	1.43	0.89	−2.67	0.90
1887	0.13	−0.23	−0.70	0.26	−1.63	−0.32
1888	−0.43	−0.16	0.22	−0.19	−0.10	−1.07
1889	−0.04	0.17	−0.53	−0.56	0.68	0.52
1890	−0.36	−0.07	−0.58	0.60	−0.75	−1.36
1891	1.06	−0.26	2.17	0.59	1.39	1.57
1892	−0.14	0.22	0.27	−0.15	−0.62	−0.03
1893	−0.49	0.30	−0.70	−1.03	0.33	−1.23
1894	−0.36	0.37	−0.23	1.40	0.24	−0.97
1895	−0.22	−0.05	0.26	−0.71	0.10	1.29
1896	−0.29	−0.29	0.50	−0.97	−1.49	−0.47
1897	0.04	0.29	−0.03	−0.59	0.39	0.80
1898	−0.34	0.15	−0.65	−0.70	2.12	−0.42
1899	0.11	0.05	0.17	−1.15	−2.61	−0.89
Normal	0.54	0.53	0.93	1.90	2.76	1.36

Year.	July.	August.	September.	October.	November.	December.	Annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1872	0.96	0.29	0.81	−0.26	0.11	−0.37	3.10
1873	0.27	−0.05	0.13	−0.21	−0.42	−0.05	−2.34
1874	1.62	−0.78	0.58	−0.30	−0.50	−0.49	−0.69
1875	2.44	0.51	2.13	−0.72	0.70	−0.07	2.95
1876	−0.57	0.57	−0.16	−0.82	0.92	1.04	5.97
1877	−1.40	−0.16	−0.38	1.21	0.15	0.11	2.21
1878	−0.40	0.79	0.47	−0.14	0.09	0.39	1.31
1879	−1.09	−0.08	−0.74	−0.75	−0.37	−0.38	−3.29
1880	−0.35	0.00	0.13	0.43	0.25	−0.56	−4.57
1881	0.77	0.87	−0.19	−0.62	1.10	−0.66	−1.36
1882	−1.07	−0.26	−0.70	−0.19	0.13	0.07	0.34
1883	0.54	−0.71	0.32	0.55	−0.26	1.66	5.34
1884	−1.08	0.25	−0.63	−0.73	−0.39	0.10	0.92
1885	−0.40	−0.28	0.46	−0.21	−0.03	0.42	1.80
1886	−1.23	0.16	0.22	−0.61	1.35	0.21	0.92
1887	0.76	1.22	0.21	0.03	−0.36	−0.52	−1.66
1888	−1.32	0.05	−0.65	−0.17	−0.25	−0.57	−4.64
1889	1.21	−1.13	−0.48	1.17	−0.05	−0.36	0.60
1890	−0.94	0.43	−0.59	−0.30	−0.28	−0.62	−4.82
1891	−1.14	1.38	−0.03	−0.46	0.11	0.90	7.28
1892	−0.54	−0.88	−0.76	2.98	−0.14	0.66	0.87
1893	−0.59	−1.11	−0.71	−0.10	−0.03	−0.31	−5.67
1894	0.88	0.40	0.79	−0.75	−0.36	0.03	0.94
1895	2.55	−0.70	0.22	0.19	−0.31	−0.65	1.97
1896	1.07	−0.49	1.05	−0.10	−0.48	−0.35	−2.31
1897	0.33	−0.02	−0.32	0.70	−0.34	−0.03	1.22
1898	−1.06	−0.50	−0.48	0.11	0.27	0.33	−1.17
1899	0.19	0.32	−0.56	0.07	−0.58	0.06	−4.82
Normal	1.73	1.46	0.76	0.94	0.58	0.66	14.15

In general, it is evident that the study of statistics for a single station is wholly inadequate to the prediction of seasonal conditions. We not only need observations over a broad area, such as the whole of the Northern Hemisphere, but also a correct view of the mechanics of the earth's atmosphere in order to guide our study.

THE THUNDERSTORM OF MAY 16 IN IDAHO.

In connection with the thunderstorm on the above date at Boise, the barogram and thermogram at that station showed remarkable changes. The temperature fell about 25° in two hours and a half, while the pressure rose 0.30 inch in the same interval of time. It bespeaks a commendable enterprise and appreciation of the meteorological interests involved when an observer and section director combine to publish the special diagrams in the monthly section reports

It would, however, be worth while to always reproduce the two curves on the same plate or block, so as to facilitate a more minute comparison between the simultaneous temperatures and pressures.

As to the reason why such corresponding changes of temperature and pressure occur in a thunderstorm it is worth noting that at least two different causes are operative. In the first place, a thunderstorm generally occurs when a wind from an area of cool, dry air underruns or pushes aside an area of warm, moist southerly winds. The very fact that the former pushes the latter aside shows that presumably a greater pressure exists within it and that, therefore, the barometer must rise when this area has established itself. In the second place, a thunderstorm is essentially due to a simple vertical interchange of warm air below and cool air overhead. The two layers of air are in unstable equilibrium and exchange places. The upper air (A) is drawn down by the force of gravity (g) prevailing at that altitude more powerfully than is the lower air (a) acted upon by its force of gravity (G). Before the overturning the joint pressure due to the weight of the atmosphere may be represented by $a\,G + A\,g$, but after the overturning the weight of the column is $A\,G + a\,g$, and the latter is greater than the former. This necessity of taking into consideration the varying products of the density by the gravity has been particularly felt of late years in the efforts that have been made to reduce barometric pressures upward or downward to other levels, and especially in the computations of the altitudes of the sounding balloons that have been used to explore the upper atmosphere. Practical formulæ for the computation of barometric pressures for each separate strata of air have been developed by Rykatcheff and by Hergesell, but most elaborately by Angot in a recent volume of the memoirs of the Central Meteorological Bureau of France.

THE HAWAIIAN STANDARD OF TIME.

In the notes accompanying the observations at Honolulu, on pages Nos. 508, 545, 8, 65, and 150 of the MONTHLY WEATHER REVIEWS for November and December, 1899, and January, February, and April, 1900, respectively, for "temperatures observed at 7:29 p. m., Greenwich time," read "4.31 p. m., Greenwich time, which is simultaneous with 6 a. m. of the local standard."

Similarly, for "the rainfall has been measured at 10:29 p. m., Greenwich time," read "7:31 p. m., which is simultaneous with 9 a. m. local standard."

Mr. Lyons says:

The rainfall began to be reported at 9 a. m., local, instead of 6 a. m., local, a year or two since, partly on account of my health and partly for the report made daily to the local newspapers.

Mr. Lyons writes that:

The Hawaiian standard time is that of the meridian of 157° 30′ W., or 10*h*. 30*m*. slow of Greenwich time, being central to the group and better for our purpose than an even hour division, and is so near the local time of Honolulu that for meteorological purposes the difference is not worth noticing.

HEAVY RAINFALL IN LOCAL STORMS.

We are sometimes asked where all the rain comes from that falls during a short time in a thunderstorm or cloudburst. Three inches of rain in an hour makes a very heavy local rain. Rainfalls from 3 inches in half an hour, up to 12 or 15 inches in an hour are spoken of as cloudbursts. The heaviest rains are those recorded at Cherrapunji, amounting to 30 or 40 inches in a day. It is very rare that rain falls from absolutely still air; in general, there is a horizon-